

# 22228

**21718**

**3 Hours / 70 Marks**

Seat No.

--	--	--	--	--	--	--	--

- Instructions* – (1) All Questions are *Compulsory*.  
(2) Answer each next main Question on a new page.  
(3) Illustrate your answers with neat sketches wherever necessary.  
(4) Figures to the right indicate full marks.  
(5) Assume suitable data, if necessary.  
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following: **10****
- Sketch adjustable spanner and state its use.
  - Define brazing process.
  - Explain ‘bending’ process of plastics.
  - Write principle of solar photovoltaic cell.
  - State any four necessity of material handling equipments.
  - Define ‘convection’. State its two examples.
  - State the need of energy audit in plastic processing equipments.

P.T.O.

- 2. Attempt any THREE of the following: 12**
- a) Explain following power tools with sketches. Chipper and Cutter.
  - b) Explain soldering process used for plastic parts along with accessories and consumables used.
  - c) Explain any one solar heating system with sketch.
  - d) Write factors governing selection of material handling equipment for large scale plastic industry.
- 3. Attempt any THREE of the following: 12**
- a) Sketch and explain working principle of milling machine.
  - b) Define renewable energy system and explain Biomass power system.
  - c) Sketch and explain any one conveying equipment used in plastic processing plant.
  - d) Explain heat transfer by radiation and state its application in plastics processing.
- 4. Attempt any THREE of the following: 12**
- a) What is preventive and breakdown maintenance? Write any four safety norms to be followed while handling power transmission equipments.
  - b) Explain 'casting' process with simple sketch and write its two applications in plastic manufacturing.
  - c) Sketch small wind turbine and state the difference between geared and direct drive.
  - d) Write safety precautions to be observed for material handling equipments used in plastic industry.
  - e) Explain counter - flow heat exchanger with sketch. State its two uses.

**5. Attempt any TWO of the following:****12**

- a) Write causes of failures in following power transmission systems:
  - (i) belt
  - (ii) rope and
  - (iii) gear suggest remedies for each
- b) Sketch and label Lathe machine. State the operations performed on Lathe machine.
- c) Name the plastic parts used in :
  - (i) Solar PV technology
  - (ii) Large wind turbinesjustify uses of these parts.

**6. Attempt any TWO of the following:****12**

- a) Explain flexible coupling with sketch and state any two applications of it.
  - b) Explain troubleshooting and remedies for :
    - (i) Hoisting equipments
    - (ii) Overhead equipments
  - c) Explain different methods of energy conservation and energy audit in plastic processing plant.
-